Verifying our air quality forecasts

Description

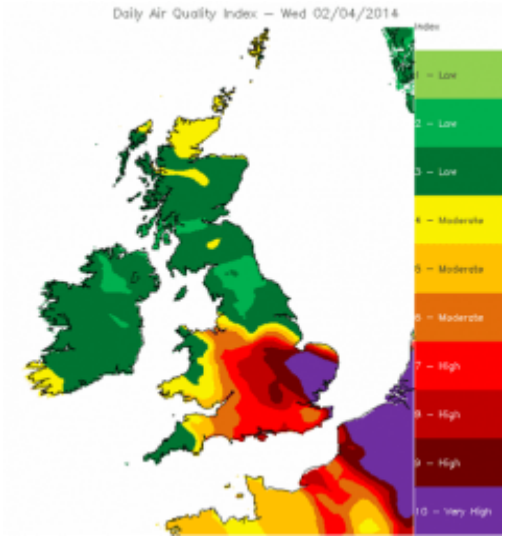
As forecast, air quality levels were poor across some parts of the UK yesterday and that continues today.

Observations available from Defra's monitoring network show that yesterday parts of the south east saw levels of 8 and 9, in the high category for pollutants, on the air quality index.

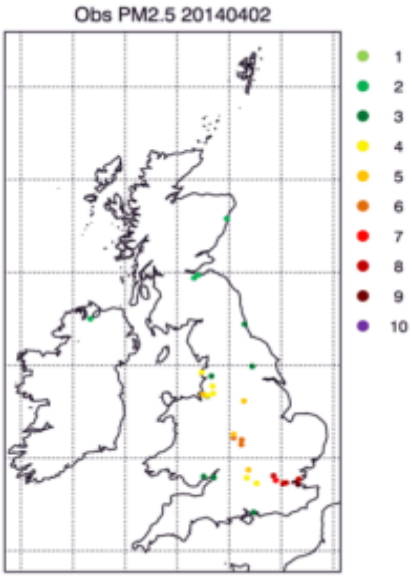
Given the close match between our forecast and the observations that we do have available, there's confidence that our forecast provided good advice and that we saw air quality levels in line with expectations.

Today's forecast is again for poor air quality in south eastern parts of the country. Observations show daily air quality index values of 10 in the London area. Conditions are expected to improve as we go into this evening and later into the week.

The air quality forecasts provided by Defra are the most detailed forecasts provided for the UK to date. It means that emergency responders, government agencies and members of the public can use the forecast to make informed decisions.



Met Office air quality forecast for 2 April 2014



Measured values of daily air quality index for 2 Apr 2014 from UK network

Date Created
April 2014

Looking at the headlines: Is summer coming early?

Description

Media headlines are already looking ahead to the kind of weather we can expect as we head towards summer in the UK.

Some articles refer to our 3-month outlook for contingency planners to bolster the idea that we could be in for some fine sunny weather, but this is not what our outlook says. Indeed our 3 month outlook doesn't give any guidance on sunshine hours, and neither does it forecast warm weather of the type reported.

While it does say that above average temperatures are favoured for the UK for Apr-May-Jun, this is only in regards to the UK's mean temperature – which takes into account both day and night for the whole three months for the whole country. For reference, the top category of above average temperatures in the outlook is about 11C to 13C. So there's nothing in there about the exact weather we'll see for those three months.

Similarly, there were no strong rainfall signals for wet or dry in this particular outlook.

Our contingency planner outlooks are experimental and form a part of our research and development. They are complex products based on the likelihood of five different scenarios related to both temperature and rainfall. This can help contingency planners make long-term strategic decisions based on risk exposure, but operational decisions on how to respond to any disruptive weather are based on our five day forecasts and warnings.

Our detailed short range forecasts will always provide the best possible guidance to the public on any periods of cold weather, heavy rain or spells of hot weather, giving detailed local information across the UK.

So those looking for any signs of good weather ahead should keep up to date with our forecasts, which go out to 30-days ahead, for our most detailed and up-to-date view of the UK's weather.

Date Created
April 2014

Cyclone Ita making landfall over Queensland

Description

A cyclone is making landfall over Queensland, Australia with winds of up to 145 mph expected, together with heavy rain and a storm surge which is likely to cause disruption for coastal communities.

Forecasts have been successfully predicting the track of Cyclone Ita for several days which has allowed time for preparations – including evacuations from the areas directly in its path. Landfall is expected near Cape Flattery, about 130 miles north of Cairns.

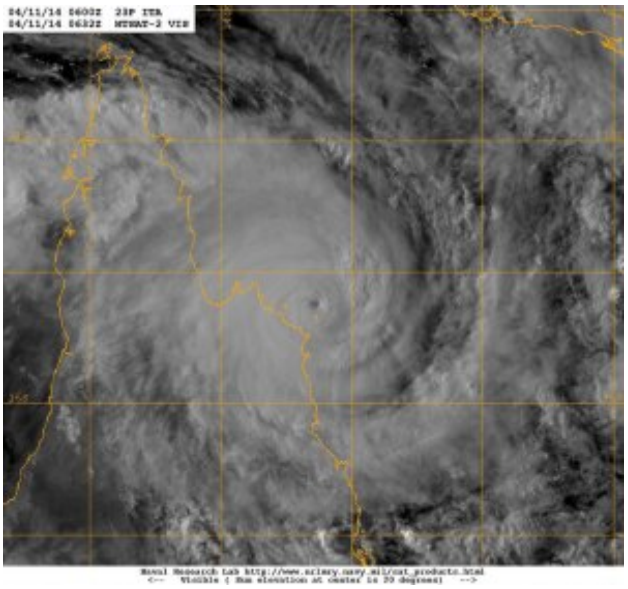
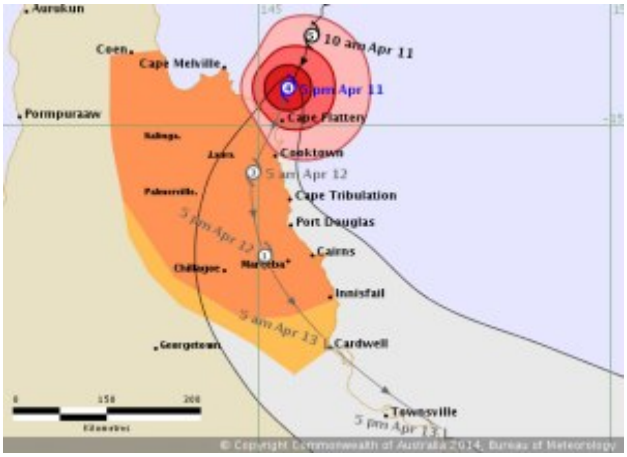


Image of Cyclone Ita (credit: Naval Research Laboratory)

Whilst Ita is making landfall over a relatively unpopulated part of Queensland and some weakening is expected, it is likely that the cyclone will turn south and move parallel to the coast before moving back over the ocean. Thus population centres further south such as Cairns, Innisfail and Townsville may see some impacts from the cyclone.



Latest forecast track of Ita from the Bureau of Meteorology

Ita is the strongest cyclone to make landfall over Queensland since Cyclone Yasi in February 2011. Yasi caused extensive flooding and wind damage in the region just south of Cairns.

Regional warnings for Cyclone Ita are produced by the Bureau of Meteorology. The Met Office routinely supplies predictions of cyclone tracks from its global forecast model to regional meteorological centres worldwide, which are used along with guidance from other models in the production of forecasts and guidance.

Met Office StormTracker provides a mapped picture of tropical cyclones around the globe with access to the history of their respective storm tracks. There are also forecast tracks from the Met Office global forecast model out to six days ahead for current tropical cyclones, as well as the latest observed cloud cover and sea surface temperature. We also provide updates on current tropical storms via @metofficestorms on Twitter.

Date Created
April 2014

Increased UV Levels

Description

You may have noticed that our forecast for UV are indicating low to moderate levels, however there is a possibility that the levels may in fact be much higher than this today. This is due to an ozone anomaly affecting the UK at the moment where levels are noticeably lower than normal. This is quite normal and similar events have occurred previously around this time of the year. We are confident that the levels should be no higher than those of a sunny day in June.

The main factors affecting the strength of UV radiation reaching the Earth's surface are:

- the elevation angle (height) of the sun in the sky
- the amount of cloud, dust and pollution in the atmosphere
- the amount of ozone gas in the stratosphere

The presence of ozone in the stratosphere is important because it absorbs much of the UV radiation *before* it reaches ground level. Our UV model currently accounts for sun angle and forecast cloud amounts, but uses a "climatological" value (i.e. the **average** concentration for this time of year over the UK) to estimate the total ozone concentration.

During the dark polar winter, the concentration of ozone in the upper atmosphere over the pole typically decreases because sunlight is a critical ingredient in making ozone in the first place. At the same time the circulation of air around the North Pole keeps all this low ozone air at higher latitudes near the pole. In March and April, as the sun moves north, this polar circulation begins to break down and occasionally allows pockets of low ozone air to break away. These can sometimes pass over the UK. In these situations there will be less ozone in the high atmosphere available to absorb the UV compared to the average amount used in our forecasts. This means that the UV index could be higher than currently indicated in our forecasts particularly if forecast cloud amounts are low. We do round-up our UV values but due to this low ozone event, the UV forecast can still be lower than the actual levels. We are currently exploring ways to incorporate low ozone events such as this into our models to improve our UV forecasts.

It is important that, if you are in an area that is particularly sunny over the next few days, you take steps to ensure that you and your family are protected from these increased UV levels.

During the next few weeks, we will continue to keep an eye on these low ozone events (which can be seen in satellite data) in order to warn the public when they are happening.

Date Created
April 2014

Guest blog: RNLI lifeguards warn of beach dangers after winter storms

Description

Brett Shepherd, Lifeguard Manager, provides some timely advice for those planning a trip to the beach as the Easter weekend approaches.

As many of our RNLI lifeguards head back to British beaches this weekend, I'm hoping for some lovely weather to herald the start of the season. But the affect winter storms have had around the coast mean that many of the country's most popular beaches are looking very different to this time last year.

Unprecedented storms over the winter have changed the make-up of some beaches, with sand dunes in some areas being washed away leaving sheer sand cliffs. On other beaches, access points to and from the beach have changed and shifting sand has left deep channels that in turn create strong rip currents.

Our RNLI lifeguards, who have been patrolling the country's beaches since 2001, will be keeping visitors safe on 33 beaches across the UK over the Easter bank holiday weekend. Whilst we're hoping lots of people head out to enjoy our glorious coast, there are a couple of easy safety steps we're urging people to take following the winter storms.

Firstly, always head to lifeguarded beaches; they are far safer environments and will help offer you peace of mind. You can download a special 'Beach Finder' app from our website which will tell you where the nearest lifeguarded beaches are, or check with local authorities. We'd also urge people planning on visiting a beach to check local information in advance, as the beach environment may have changed dramatically since your last visit.

Swimmers should ensure that they swim between the red and yellow flags, which mark out the safest area to swim and are patrolled by lifeguards. Lifeguards are always on hand to offer beach safety information and advice, and please take heed of local safety signage.

By highlighting the dangers before visitors arrive at the beach, we hope that we can avoid potential incidents and everyone can enjoy their time on the beach in safety.

RNLI lifeguard rescue. Copyright Nigel Millar

Date Created
April 2014

Met Office weatherman in Camp Bastion

Description

Met Office meteorologist Simon King has just returned from Afghanistan where he has been part of a crack team forecasting the weather for our Armed Forces. He has been working with the Met Office's Mobile Met Unit (MMU) which gives advice on the potential impact of weather on armed operations.

Simon King, MMU, Camp Bastion

Simon has been a Met Office meteorologist for eight years and is also an Officer in the Royal Air Force Reserve having completed tours in Iraq and Afghanistan. In a war zone weather can have a major influence on military operations and during his most recent tour in Afghanistan, Simon says his forecasts helped "forewarn of a major thunderstorm which turned the 'normal' dirt and sand into very unpleasant muddy conditions and enabled the military to take appropriate action mitigating any major impacts to their operations."
The MMU is a sponsored RAF reserve unit made up of around 50 Met Office volunteers who have undergone military as well as meteorological training. They help the UK's Armed Forces and allies understand the impact of weather on military activities and can help keep troops safe.

Simon explains: "Work at the Met Office in Camp Bastion is intense, with four members of staff providing 24/7 cover doing both observations and forecasts. While the weather and forecasting is a challenge, we are also working in a hostile environment with numerous threats."

On his most recent tour temperatures were much cooler than the average and perhaps not quite as warm as people might think for a desert. While Simon was there temperatures were around 5/6 °C or lower at night with maximum temperatures around 16-20 °C, occasionally reaching 25 °C.

In addition to his work for the military Simon King also presented the weather on 5Live Breakfast one morning live from Afghanistan. He says “as I had access to the same meteorological information in Camp Bastion as I would at my desk in the UK, it wasn’t an issue to put together a UK forecast. In fact, as Afghanistan is four and a half hours ahead of the UK, it did mean there was no 4.15am alarm call and the first broadcast was at 11am!”

As well as working in Afghanistan MMU advisors work closely with our armed forces involved in other operations and exercises in the UK and overseas. A reliable and efficient delivery system, managed by a team of dedicated MMU Engineers, ensures our advisors have access to the most up-to-date weather information, when ever and where ever they need it. This includes outputs from our high-resolution forecasting models and support from many other Met Office teams such as IT, Science, Observations, and Operations.

Date Created
April 2014

May Bank Holiday – Fine and dry for most

Description

Despite some reports, Met Office forecasters are expecting pleasant weather for many over the Bank Holiday weekend, with a good deal of dry weather, rising daytime temperatures and some spells of strong sunshine at times.

Although air of polar origin moving southwards will cause much colder nights on Thursday and Friday this week, bringing air frost to some northern parts, daytime temperatures are set to recover quickly and most parts of the UK will begin to feel pleasantly warm in the sunshine this weekend.

After a chilly start on both Saturday and Sunday, many places will see dry conditions with clear and sunny periods. The best of the sunshine will be in southern and eastern areas. Some northern and western parts may be cloudier with outbreaks of rain and drizzle. However, where conditions are brighter on Sunday and Monday temperatures should be above average making it feel pleasantly warm.

Although it is too early to be certain, indications are that many parts of the country will have a fine and warm Bank Holiday Monday.

Check our local 5-day forecast for the weather forecast in your area.

Date Created
April 2014